vmware®

Innovate and Thrive in the Mobile-Cloud Era

Journey to the
Software-Defined
Enterprise

Operate at the Velocity of Business

Deliver new products and services more quickly. Get closer to customers. Make increasingly mobile workers more productive. The pressure on your business to innovate has never been greater. But is your existing IT infrastructure capable of advancing your business goals?

As we enter the mobile-cloud era, business expectations of IT have accelerated exponentially. You must be able to manage billions of new mobile consumers and millions of new applications and services with flat or declining resources. A fundamental change in "how IT is done" is required. And your organization will need to move to a software-defined approach to cost-effectively and competitively serve internal and external customers, ultimately achieving an IT-as-a-service (ITaaS) approach.

Give IT Control to Empower Users

ITaaS empowers your customers, your employees, and your IT organization. While personalizing IT delivery, ITaaS minimizes technology overhead, training, and excess process and maximizes IT agility, flexibility, responsiveness, and control. ITaaS enables your IT team to stop reacting to a never-ending list of requests and start proactively partnering with the business. As a strategic service broker, IT can more effectively meet demands and help drive competitive advantage. But how can you increase business agility and revenue without driving up costs?

Accelerate Your Business

VMware pioneered virtualization, the foundation for cloud computing, so businesses can innovate and thrive while saving billions of dollars. Because VMware® virtualization and automation software extends across the entire data center to the virtual workspace, we can radically simplify IT in support of your unique business goals.

VMware infrastructure is the foundation for some of the largest and most successful private, public, and hybrid cloud environments in the world. More than 500,000 customers trust VMware software to help them reduce costs, dramatically increase agility while maintaining control of their IT environments, and significantly improve business outcomes. And VMware solutions enable efficient, reliable, and secure ITaaS without sacrificing choice across any application or cloud and through the richest partner ecosystem in the industry.

Begin Your VMware Journey >

Journey to the Software-Defined Enterprise

Phase I
CapEx Savings/
Consolidation

IT Production

Phase II
OpEx Savings
Quality of Service
Improvements
Reliability

Business Production

Phase III
Agility/Automation

IT as a Service

Three-phase IT Journey investments return value to organizations on the path to delivering ITaaS.

When your organization engages with VMware and the extensive VMware partner network, you begin a journey from progressively evolving traditional IT infrastructure to a more agile, efficient, and virtualized cloud computing environment. Throughout the VMware Journey, you can realize greater and more strategic value from your IT investments.

Companies typically begin the Journey by virtualizing infrastructure to consolidate investments and reduce costs. Many then virtualize business-critical applications and pursue a strategy of leveraging automation and higher degrees of management to extend virtualization beyond the computing platform to the rest of the infrastructure, including storage, networking, and security. These efforts reduce operational costs and improve service quality. But only when virtualization is truly pervasive can your business finally realize the full value of ITaaS and achieve the goal of becoming a Software-Defined Enterprise.

181%
IT Production

192%
Business Production

229%
IT as a Service

Companies realize greater ROI from virtualization as they move through the phases of the Journey.[1]

37% more responsive to IT requests

While saving **30%** of both operations and development staff time

Increasing revenues **26%** due to new applications and IT services

Investing **50%** of their budgets in innovation

Able to secure nearly **2/3** more budget than their less-mature counterparts

Companies delivering ITaaS achieve significant benefits by running their operations fundamentally differently from their peers.[2]

Move to the Future with Confidence >

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[1] VMware. "IT Evolution: Today and Tomorrow – Insights from the VMware 2013 Journey to IT as a Service Survey." August 2013.
[2] Ibid.

Build on a Proven Foundation

More than a decade ago, VMware introduced the VMware vSphere® virtualization platform to help businesses reduce IT complexity and cost. Now VMware is third among all global businesses on the Forbes "Most Innovative Companies" list.[3] By enabling faster, easier application and resource provisioning, VMware and VMware partner technologies increase IT and business agility. They improve IT control by delivering an elastic pool of compute, storage, and networking resources through software. And they eliminate operational inefficiencies, so your organization can finally reassign existing IT resources from maintenance projects to business-building innovation.

But everyone who relies on technology knows that change is constant. That is why VMware and the extensive VMware partner network offer a practical and evolutionary approach to accelerating IT in the mobile-cloud era. Across the data center to the virtual workspace, VMware and the VMware ecosystem are advancing the following key imperatives for the Software-Defined Enterprise:

▸ **Software-defined data center** – Extending the cost and operational benefits of server virtualization to all data center infrastructure—compute, networking, security, and storage—through an open architectural approach; also using automation that enables IT to move at the speed of business

▸ **Hybrid cloud** – Delivering a common management, orchestration, networking, and security model that seamlessly extends the data center to the cloud and supports existing and next-generation applications to increase agility

▸ **Mobility** – Bringing the freedom, flexibility, and management advantages of virtualization to organizations that need to support on-the-go, multidevice users

Fortune 100 companies and small and midsized organizations invest in comprehensive VMware virtualization, automation, and management solutions to shift IT's economic structure. The move is away from simply maintaining existing operations to investing resources in initiatives that improve top-line revenue and meet key business goals.

The New Role for IT: IT as a Service
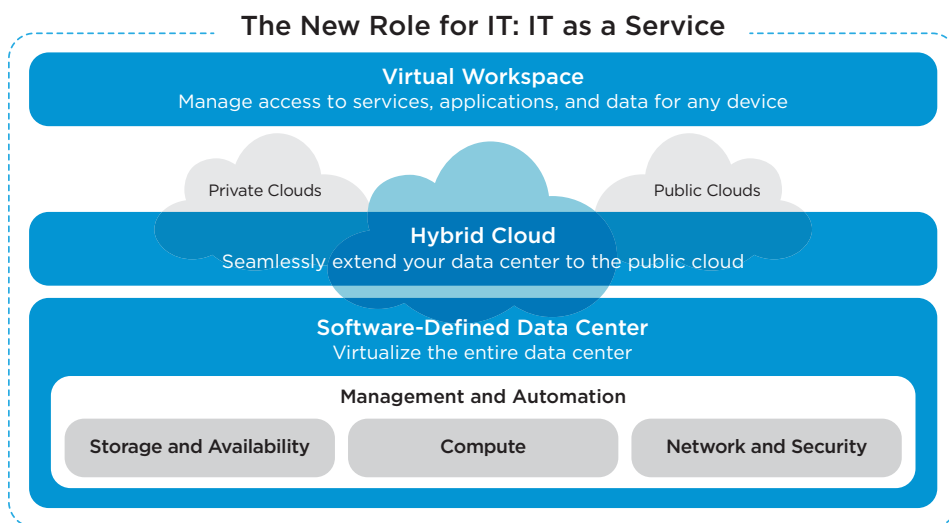
VMware offers complete cloud solutions that include technology, services, and guidance to build, operate, staff, and manage your cloud.
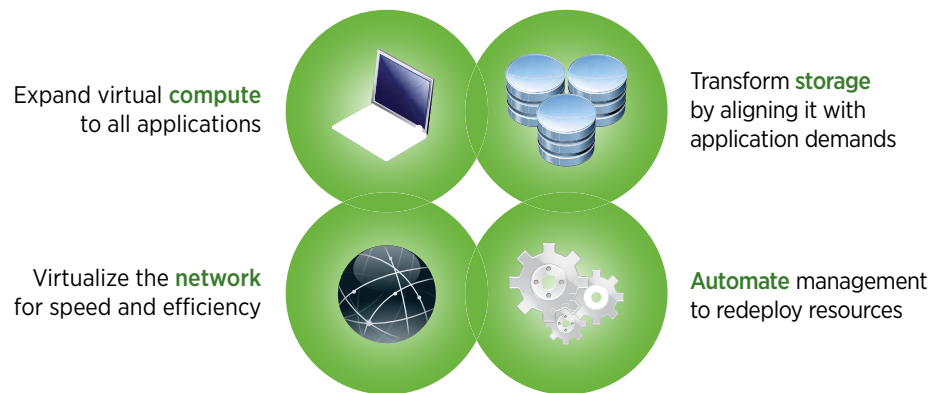
Evolve IT and Enable ITaaS >

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[3] Forbes. "The World's Most Innovative Companies." August 14, 2013.

Redefine IT Infrastructure:
The Software-Defined Data Center

If your organization has experienced cost savings from server virtualization, imagine the additional benefits you can achieve by expanding virtual compute to all applications, then to storage and networking. When you virtualize with VMware and the large VMware ecosystem, you gain the architecture, technology, and services to enable the software-defined data center.

Pioneered by VMware and recognized as groundbreaking by the industry and analysts, the software-defined data center architecture helps enable an automated infrastructure for any application and any hardware, now and in the future.

Expand virtual **compute** to all applications

Transform **storage** by aligning it with application demands

Virtualize the **network** for speed and efficiency

Automate management to redeploy resources

All infrastructure is virtualized and delivered as a service in the software-defined data center.

Extend Virtual Compute to Increase Agility

The ideal architecture for a private, public, or hybrid cloud, the software-defined data center expands the power of virtualization and automation to all data center services—storage, networking, and security—delivering unprecedented efficiency, agility, and control. In this environment, every mission-critical application, every database, every big data application, and every physical server is replaced by virtual infrastructure. VMware vCloud® Suite and VMware vSphere® with Operations Management™ are the ideal virtualization platforms for expanding compute to all applications.

Transform Storage to Lower Costs, Raise Performance

But applications need data, and data must be stored, which is why VMware and leading storage technology partners are providing a three-component architecture for software-defined storage. It includes a policy-driven control plane, where IT can set policies for capacity, performance, and availability requirements on a per-virtual-machine basis and have those policies operated upon by the rest of the virtualized infrastructure. It also includes virtualization of the data plane, which enables IT to abstract and pool the heterogeneous capabilities of the underlying storage infrastructure and advertise those capabilities to that software-driven control plane. Finally, it includes virtualization of application-centric data services, which have been tightly bound to the hardware arrays to enable a rich set of virtualized data services.

VMware Virtual SAN™ is an environment that extends the hypervisor to pool compute and storage using local storage and flash technology as a new converged infrastructure, data storage tier. It includes tight policy integration with the virtualization layer. And it is resilient. High-performing Virtual SAN takes advantage of local storage and local read/write caching in the virtual machine to reduce the cost and raise the performance of storage, especially for businesses requiring virtual desktop infrastructure, branch office connectivity, and tier 3 storage.

Virtualize the Network to Improve Speed and Efficiency

After storage is aligned with application demands, you can begin to empower your customers and workforce by virtualizing the network for speed and efficiency. You can free workloads from physical network infrastructure and free IT staff from slow, error-prone provisioning processes by abstracting network functionality from underlying hardware. Through a software-defined model you can transform networking so that it is programmatic and automated and helps increase IT agility.

VMware NSX™ is built to support any application, any cloud management system, any hypervisor, and any network hardware. In the same way VMware ESX® revolutionized compute, NSX is revolutionizing network operations and computing. By virtualizing your network with NSX, you can accelerate application deployment, lower capital and operational costs, and transform network operations in a nondisruptive manner.

Automate to Redeploy Resources for Innovation

Critical to this data center of the future is automated IT operations management. Traditional IT management created information and infrastructure silos; automated cloud management provides actionable dashboard views. IT is better able to manage security, compliance, and risk while driving business value. Automated management solutions from VMware and VMware partners support more virtual machines, more events, and more complex interactions with powerful policy-driven tools. They simplify IT management—across physical infrastructure, multiple virtual environments, and multiple clouds—enabling IT organizations to transition from implementers to strategic partners within their businesses. The breadth and depth of the VMware solution for driving automation and IT management improvements are unparalleled, giving IT the opportunity to truly broker services across the entire organization. IDC recently reported that VMware is number one in cloud management.[4]

With the software-defined data center, your business can leap into the future without leaving all of your applications behind. You can take control away from disparate operating systems and put it back into the hands of IT. Best of all, you can choose the virtualization path that will provide your organization with the most benefits.

> "The flexibility and scalability enabled by our VMware-powered private cloud helps us address business needs by accelerating the delivery of business-critical applications and services. Our investment in VMware cloud management helps us simplify and automate the management of our cloud. This powerful combination means that Columbia Sportswear is able to respond to business and market opportunities faster than ever before."
>
> Fred Pond,
> Vice President and CIO,
> Columbia Sportswear

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[4] IDC. "Worldwide Cloud Systems Management Software 2012 Vendor Shares." Mary Johnston Turner, June 2013.

Two Paths to Achieve Your Business Goals

No matter which path your organization follows, VMware provides the proven solutions you need to redefine your IT infrastructure.

PATH	CLOUD COMPUTING	VIRTUALIZATION EXPANSION
Target Organizations	Organizations that choose to fully embrace cloud computing.	Organizations that want to incrementally derive more from IT production.
Benefits	**Amplify results** by deploying the complete VMware solution supporting the software-defined data center. **Increase IT responsiveness to the business** by enabling self-service access to cloud services and automating provisioning. **Deliver the best SLAs for all applications,** ensuring disaster protection as well as operational and regulatory compliance for all workloads. **Simplify and automate IT management,** including cloud service provisioning, cloud operations management, and cloud business management. **And achieve all the benefits of virtualization expansion** (see next column).	**Accelerate results and double the IT savings** of vSphere by deploying vSphere with Operations Management. **Improve capacity utilization by 40 percent.**[5] **Increase consolidation ratios by 37 percent.**[6]
Solutions	To build a private cloud, begin with vCloud Suite, which includes all the key components—infrastructure, management, networking, and security—to build and operate a private cloud. Deploy NSX and Virtual SAN with vCloud Suite to further your organization's ITaaS goals. These solutions bring together all the elements you need to build, run, and maintain a complete cloud solution based on the open software-defined data center architecture.	The next iteration of the flagship VMware virtualization platform, vSphere with Operations Management adds capacity planning and health monitoring and alerting capabilities. These features enable users to gain operational insight into vSphere to reclaim unused capacity, rightsize virtual machines, improve utilization, and increase consolidation ratios. Optimize capacity and expand virtual environments with confidence, while gaining visibility into workload health to improve availability and performance.

If you are looking to the public cloud to increase IT and business agility, you can seamlessly extend your data center to the cloud with hybrid cloud solutions from VMware.

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[5] Management Insights. "The Benefits of VMware's vCenter™ Operations Management Suite™: Quantifying the Incremental Value of the vCenter Operations Management Suite for vSphere Customers." Sonia Sheffield, Jack Mandelbaum, September 2012.

[6] Ibid.

Deliver the Hybrid Cloud

When end users and executives work around IT to procure on-demand services from third-party cloud providers, your business's total cost and risk can increase. By choosing a proven hybrid cloud service, your organization can effectively bridge the expectation gap between business and IT leaders and accelerate time to value.

Cloud services from VMware and more than 250 VMware vCloud® service providers enable you to move applications seamlessly between onsite and offsite environments without worrying about application compatibility or service provider lock-in often associated with other cloud services. You can achieve the benefits of hybrid cloud—portability and compatibility—without compromising security, reliability, and performance. And this compatibility helps protect your existing investment in IT resources and skills, resulting in reduced cost *and* risk.

VMware vCloud® Hybrid Service™, built on vSphere and based on a software-defined data center architecture, supports existing and third-party applications, as well as new application development. Rolling out in specific markets across the world, it is the best and fastest route to hybrid cloud because it enables you to quickly and seamlessly extend your data center into the cloud using the tools and processes you already have. There is no need to rewrite code or change existing applications. Providing a new level of efficiency, vCloud Hybrid Service supports the deployment of an application anywhere, anytime, and easy management of it across clouds. With vCloud Hybrid Service, you can reduce costly provisioning effort, decrease time to market, and increase innovation, driving revenue-generating services into the market more quickly.

Because it extends from your organization's private cloud into the public cloud, the service meets the four essential requirements of a hybrid cloud:

▸ **Common management and orchestration platform** – A single pane of glass to provision, manage, automate, and deploy your applications provides business users with easy, agile access to IT services without changing IT's operating model.

▸ **Unified network architecture** – Seamlessly moving or federating workloads between your private and public clouds avoids making time-consuming changes to DNS configuration or IP addresses.

▸ **Common security model** – Comprehensive protection across clouds reduces risks that come from actions such as "punching" through multiple firewalls or DMZs.

▸ **One support call** – A single point of contact to support your workloads regardless of where they run saves time and reduces IT headaches.

Whether you choose cloud services from VMware or a VMware vCloud service provider partner, the VMware approach to the hybrid cloud puts your IT organization back in control as the primary broker of services sourced from a variety of providers. While your IT staff maintains the control necessary to mitigate business risk, you can empower your users with freedom of choice.

> "vCloud Hybrid Service will provide a great up-to-date test environment that can easily be converted to production."
>
> Colby Cousens,
> System Administrator,
> City of Melrose, Massachusetts

Enable a Device-Independent Workforce

In the mobile-cloud era, your existing IT infrastructure must evolve to support new and future requirements. That is why end-user computing solutions from VMware and VMware partners address both the cost and complexity of managing PCs and emerging mobile devices.

In the PC era, users typically accessed applications and data stored on desktop computers; IT traditionally focused security on the physical security of the desktop and access to the network. Now users operate in a mobile, multidevice world. They bring their own devices—mobile phones, tablets, and laptops—to work, which invites new IT challenges.

VMware Horizon™ Suite is a secure, mobile enterprise platform that empowers your IT team to empower your end users. It supports bring your own device (BYOD) mobility and virtual workspace initiatives, enabling IT to deliver what users need, when they need it.

VMware Horizon Suite

Simplify desktops, diverse applications, and data into centralized services

App Catalog   Desktop   Data

Centrally manage, secure, and define policies that automatically broker services to users

Empower your workforce with flexible access across devices, locations, and connectivity
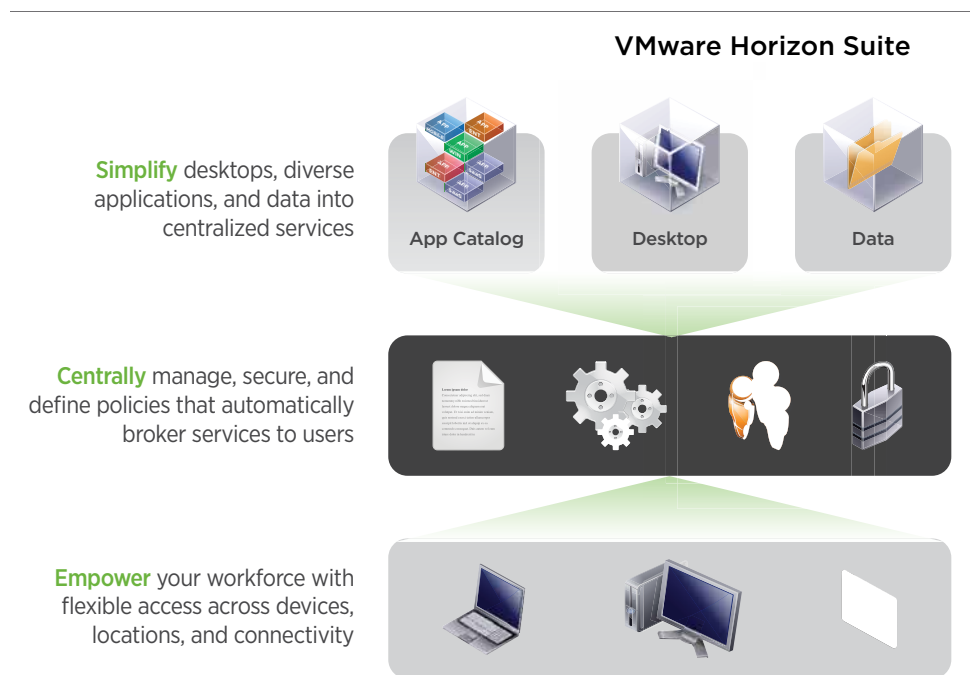
Horizon Suite is a comprehensive platform for workforce mobility.

With Horizon Suite software, your business gains a complete solution that connects end users to their data, applications, and desktops on demand—across multiple devices, both business and personal. It helps you meet the needs of your increasingly mobile workforce without sacrificing IT control and security. And Horizon Suite simplifies IT operations by transforming infrastructure silos into secure managed services.

Architect Your Strategy >

Benefit from Real-World Experience

Whether you are just getting started or expanding your virtualization footprint, VMware Professional Services help you uncover the unique opportunities presented by industry-leading VMware solutions and technologies. The extensive VMware services community includes VMware Professional Services and select service-delivery partners. Consultants and advisors combine extensive, real-world experience with unparalleled virtualization and cloud computing expertise. These skills help your IT organization address the technical, people, process, and financial aspects of ITaaS to deliver positive, tangible, and material results to IT and your business.

The VMware Professional Services portfolio includes the following capabilities:

▸ **Accelerate Advisory Services** use benchmarking and financial modeling analysis and insight to help identify opportunities for transformation and create executable IT strategies and roadmaps that support your business goals.

▸ **Technology Consulting Services** create, expand, or enhance cloud environments and optimize VMware technologies, processes, and organizations to deliver positive material outcomes while transferring hands-on knowledge that builds the self-sufficiency of your teams.

▸ **Technical Account Manager Services** continually enrich your strategies and tactics for driving change over time while advocating for your needs inside VMware and helping improve support for VMware projects.

▸ **Education Services and Certification Programs** help build the skills, confidence, and experience you need to manage your IT landscape.

Continue Your Journey to the Software-Defined Enterprise >

Change the Game with VMware Solutions

By simply building on your existing VMware foundation, your organization can accelerate IT, achieve your ITaaS goals, and transition to a Software-Defined Enterprise. Virtualize all data center infrastructure using an open, software-defined architectural approach. Deliver the hybrid cloud without having to choose between private or public clouds and providers. And take advantage of the benefits of virtualization to empower IT and your mobile, multidevice-carrying customers and workforce.

Why VMware?

Customer-proven solutions that deliver the lowest TCO – vSphere and vCloud are the industry's most trusted platforms for virtualization and cloud computing. More than 500,000 customers—including 100 percent of Fortune 500 companies, 100 percent of Fortune Global 100 companies, and thousands of small and midsized businesses—use VMware technologies and services. Moreover, studies prove that virtualizing with VMware offers lower TCO than other solutions.

Unprecedented efficiency from solutions designed to virtualize the entire data center – Through server virtualization and a software-defined data center approach, VMware optimizes IT across the data center to the virtual desktop at a level unparalleled in the industry. You can now virtualize, automate, and manage everything from applications and desktops to complete IT infrastructure—servers, storage, networking, and security—increasing business value while reducing risk.

Greater IT agility with complete security, reliability, and control – Software from VMware and the VMware partner network enables you to reliably extend your private cloud to a hybrid cloud without retrofitting an operating system. The purpose-built VMware platform delivers a seamless, reliable, and secure experience for all devices in the mobile workspace, and our solutions bridge the gap between business and IT needs, enabling IT to become a strategic service broker for the entire business.

Connected vision and goals – Understanding that you have a mixed environment, VMware supports your requirements for a heterogeneous, multiplatform infrastructure. Because it is a multicloud world, VMware and VMware partner solutions enable you to run any workload, anywhere, as you choose. Only we deliver a software portfolio designed for private, public, and hybrid cloud computing to address your needs—for any application, any cloud, any workload, anywhere.

Team with VMware to radically simplify IT. Virtualize and empower IT and your users. And let ITaaS free your IT organization to become a greater source of innovation, creating a Software-Defined Enterprise that grows revenue and furthers strategic differentiation for your business.

Learn more at http://www.vmware.com.

"With this capability, we moved our service delivery model into true agile mode."

Job Simon, Vice President, IT Strategy and Architecture, VMware

Achieve Results Beyond Expectations

As the leading user of our own products, VMware is committed to passing on the lessons learned by our internal IT group in applying virtualization and cloud management technology to solve business challenges. Nearly a dozen internal teams are benefiting from our private cloud, achieving greater agility and reducing costs. The following is one example.

VMware IT Automates Application Provisioning in Private Cloud

In response to decreasing satisfaction and productivity levels among business-application developers, the VMware application operations team (AppOps) used a private cloud based on a software-defined data center architecture to automate provisioning throughout the software development life cycle. Achieving results required executive-level support and investment to drive architecture and operations transformation. IT shifted from the traditional data center environment to the private cloud and deployed cloud management and automation capabilities to provision complex stacks and multistep workflows. IT also converted the manual "human-middleware" process to an end-to-end, automated process with blueprint-based provisioning.

The private-cloud solution delivered the following significant benefits:

- Reduced application environment provisioning time from an average of 4 weeks to 36 hours; on target to achieve the goal of 24 hours

- Increased productivity of 600 developers by as much as 20 percent

- Improved capacity and service quality so that AppOps can now consistently respond "yes" to all project requests

- Saved the business USD $6M per year in infrastructure and operating costs

- Improved quality of instances because blueprint-based provisioning ensures identical outputs

Key Takeaway

Corporate IT's investment in agility to better meet business needs also resulted in lower costs and improved service quality.

vmware®